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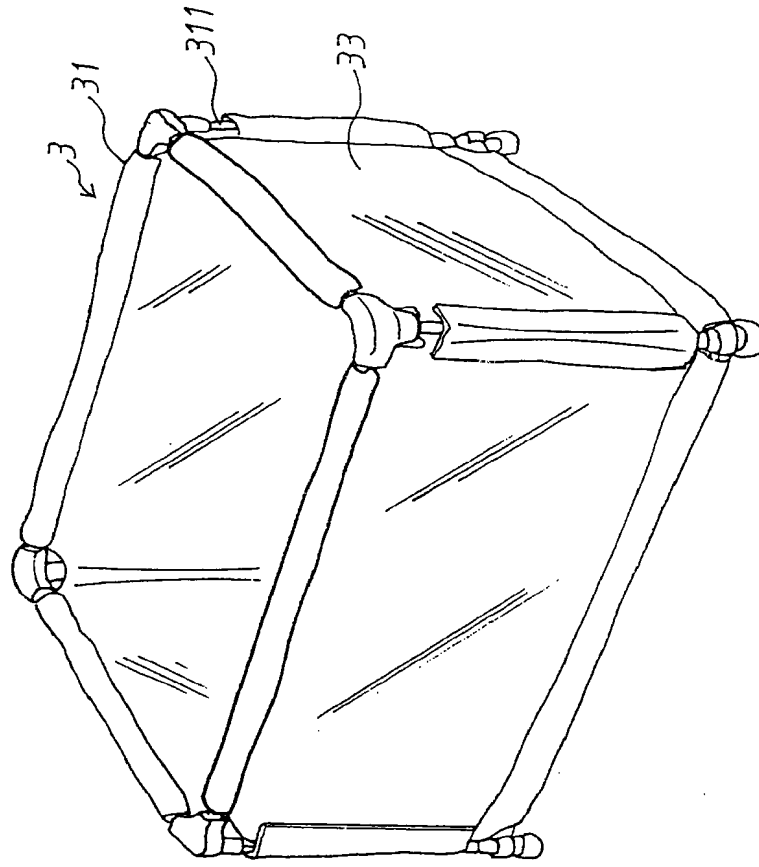


Fig. 1

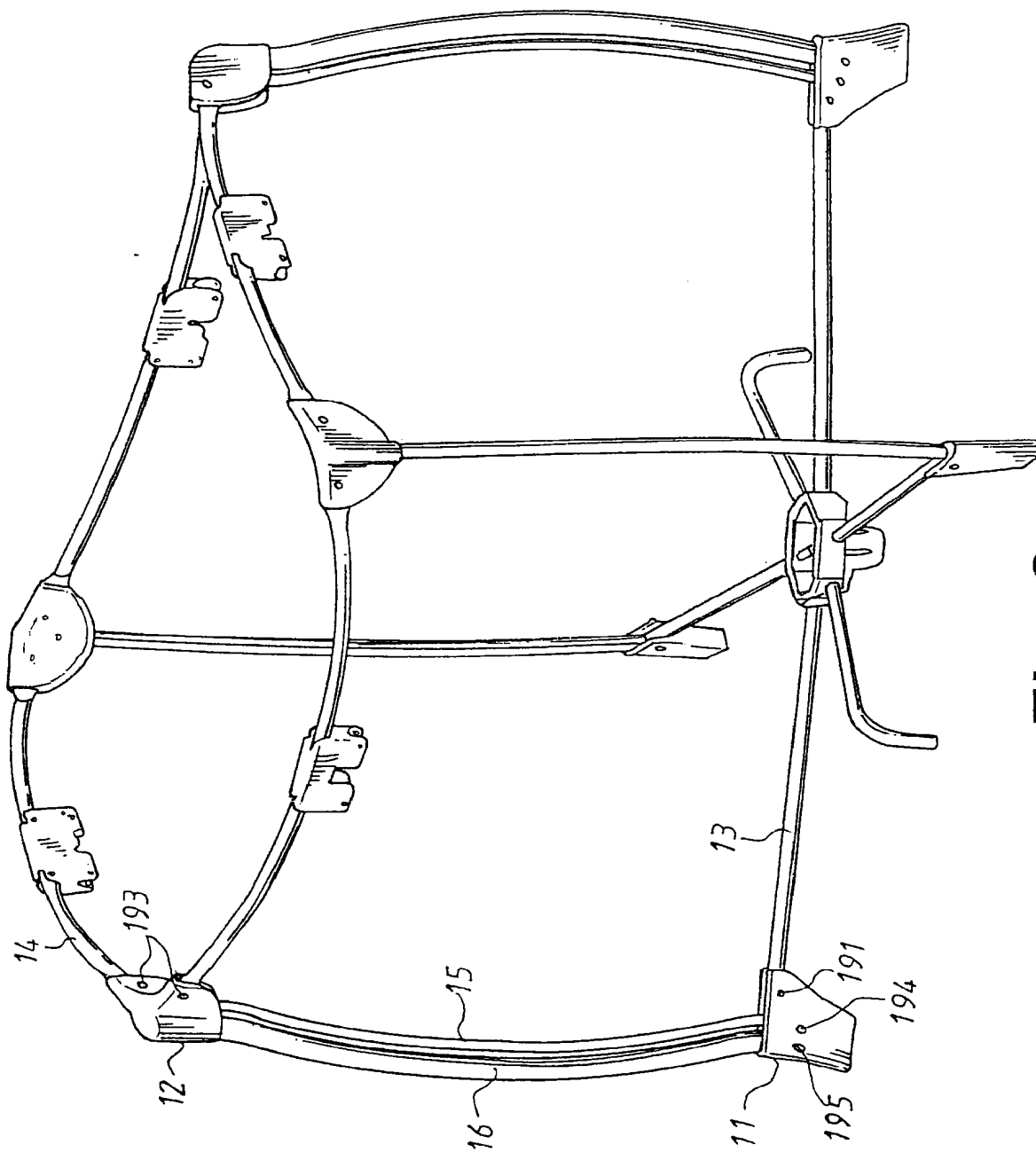


Fig. 2

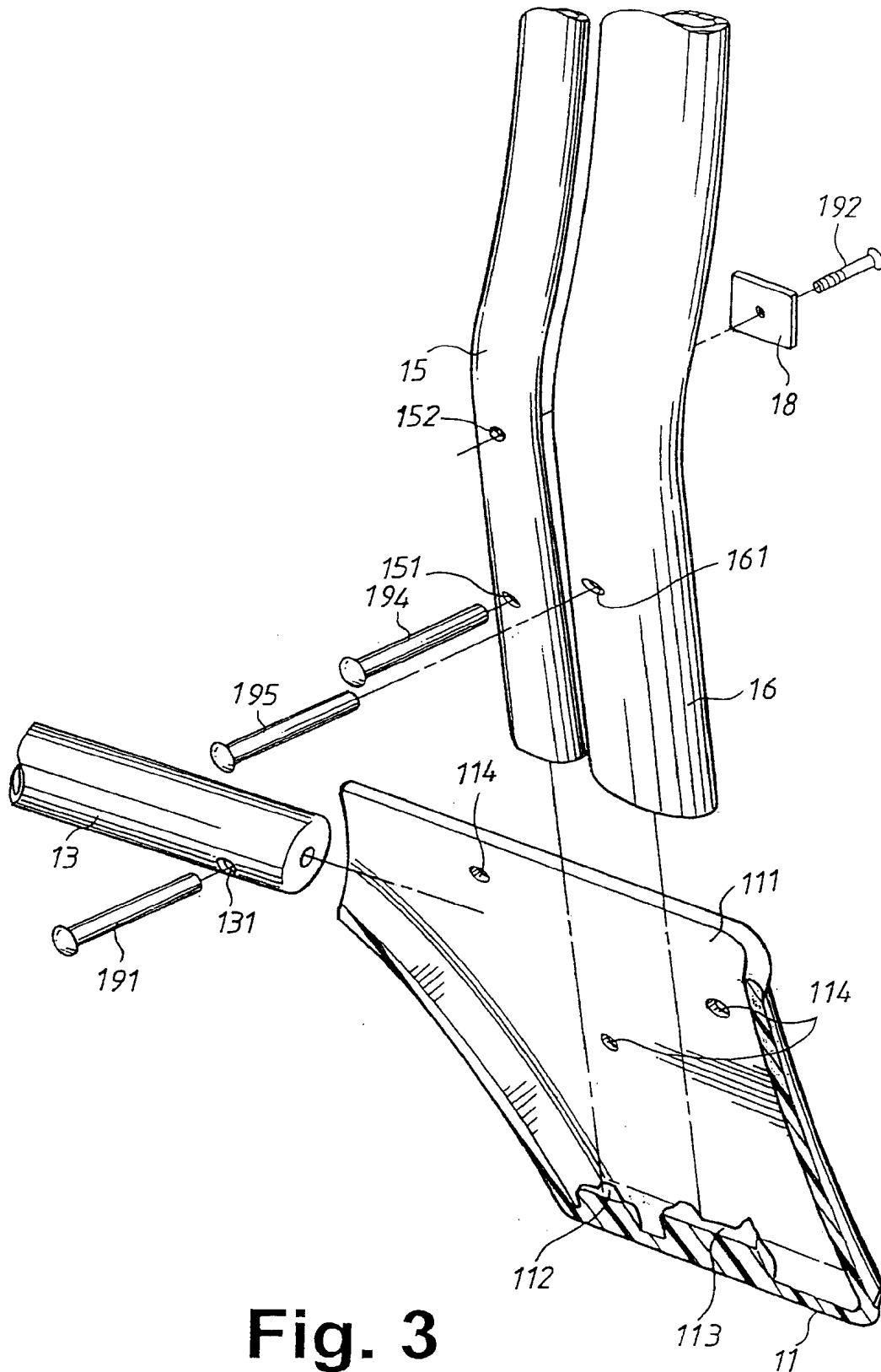


Fig. 3

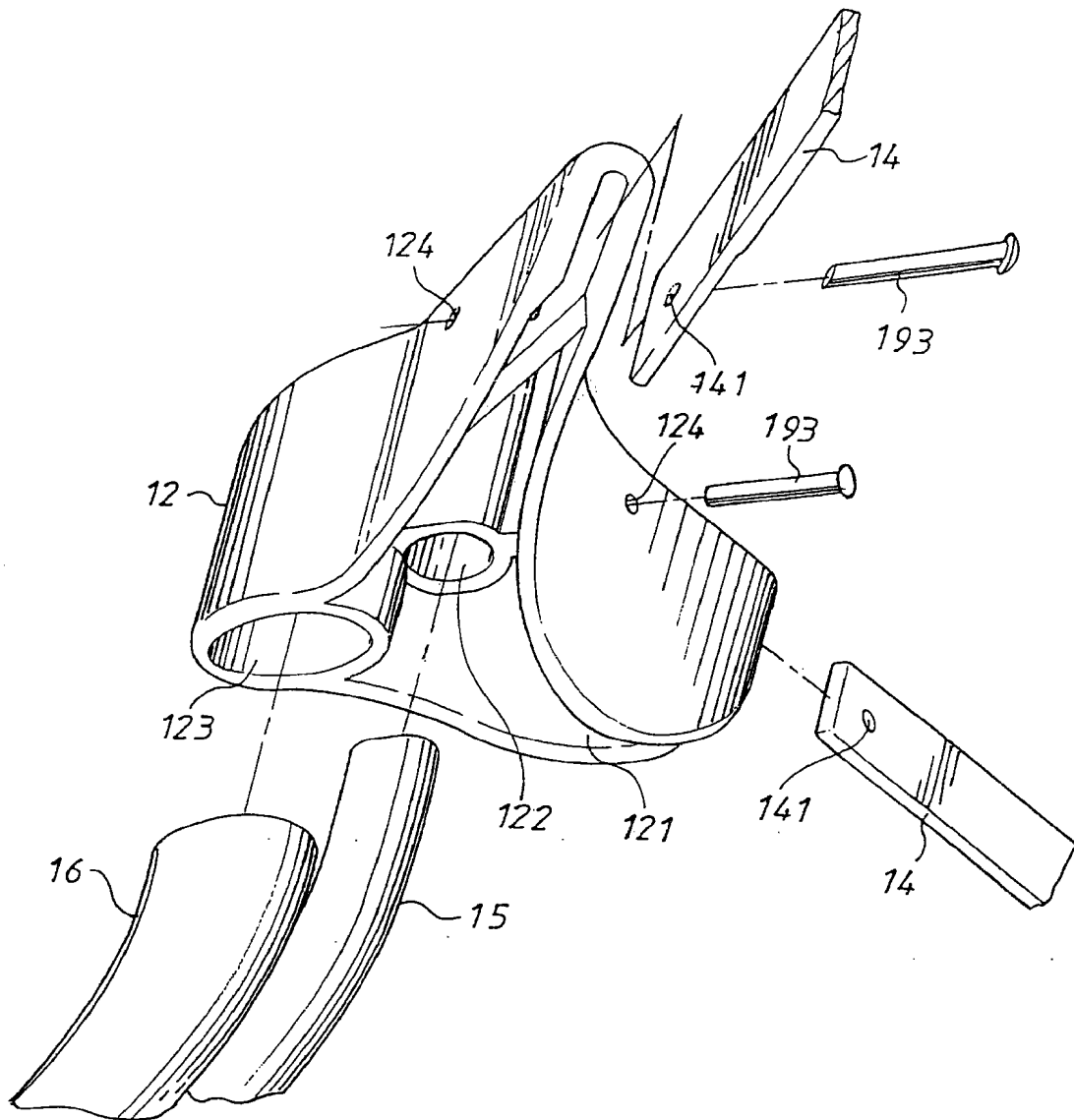


Fig. 4

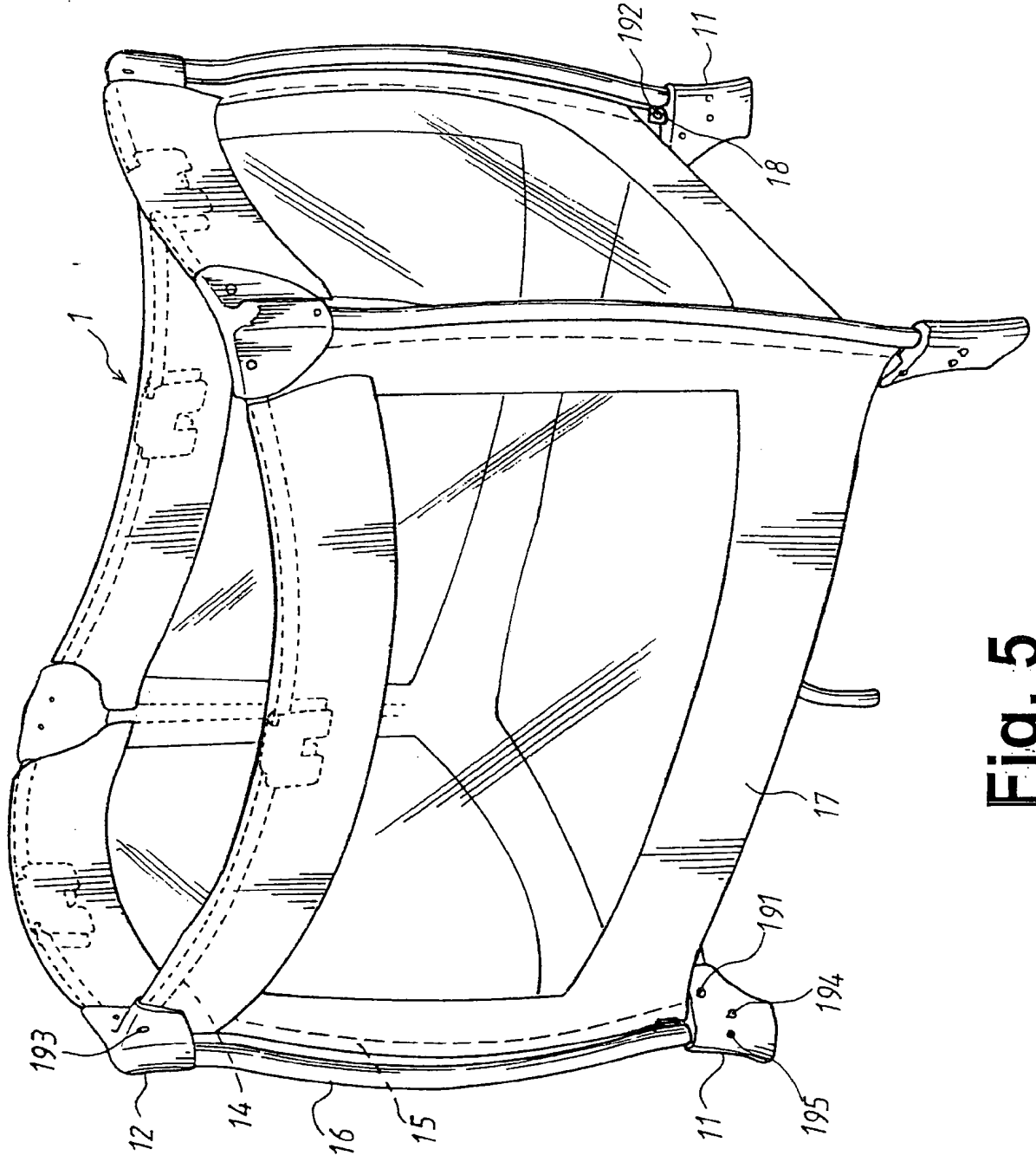


Fig. 5

Playpen with Columns

Field of the Invention

The present invention relates generally to a playpen, and more particularly to a playpen with multiple columns.

5 Background of the Invention

A conventional playpen 3 disclosed in US patent 6,539,563 B1 is shown in Fig. 1. The conventional playpen 3 mainly comprises a rectangular frame 31 and a boundary sheet 33 covering five surfaces of the frame 31. The frame 31 has a pole 311 at each of four nooks and the boundary sheet 33 completely covers all poles 311 such
 10 that the conventional playpen 3 is full of boundary sheet 33 in appearance and thus the visual feeling of abounding in various materials, such as metal and plastic, is by no means obtained. Besides, the poles 311 fail to provide additional space for artificial decoration. Therefore, the conventional playpen 3 with one pole at each nook sets a congenital limit in the respect of design to the designer on one hand, and fails to meet
 15 a variety of needs for various consumers on the other hand.

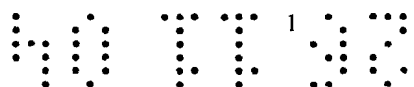
Moreover, the conventional playpen 3 with one pole at each nook needs poles with larger diameter in order to meet the demand in the respect of strength, which make the conventional playpen 3 appear clumsy.

Summary of the Invention

20 Accordingly, the present invention relates to a playpen with columns that can substantially obviate one or more of the problems due to the limitations and disadvantages of the related arts.

One object of the present invention is the provision of a playpen with columns which can reveal the feeling of abounding in a variety of materials.

25 Another object of the present invention is the provision of a playpen with columns which allows additionally artificial decoration.



A further object of the present invention is the provision of a light and efficient playpen with columns.

Additional features and advantages of the invention will be set forth in the description which follows, and in portion will be apparent from the description, or
5 may be learned by practice of the invention. The objectives and advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

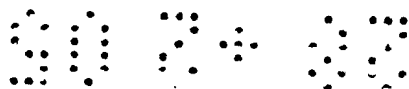
To achieve these and other advantages and according to the purpose of the present invention, as embodied and broadly described, the playpen with columns comprises: a
10 plurality of first corner components; a plurality of first rods connecting the first corner components; a plurality of second corner components; a plurality of second rods connecting the second corner components; a plurality of first columns each having two opposite ends, one end being connected to a first corner component, another end being connected to a second corner component; a plurality of second columns each
15 adjacent a first column and having two opposite ends, one end being connected to the same first corner component as the first column, another end being connected the same second corner component as the first column; wherein a gap exists between an adjacent first column and a second column to enable a boundary sheet to pass therethrough to enclose the first columns of the playpen.

20 It is preferred that each second corner component further comprises a first sleeve and a second sleeve for respectively connecting with the first column and the second column.

It is preferred that each first corner component further comprises a first bulge and a second bulge for respectively connecting with the first column and the second
25 column.

It is preferred that the columns respectively bush around the bulges.

It is preferred that the playpen further comprises a plurality of rivets to secure the columns respectively to the first corner components.



It is preferred that the playpen further comprises a plurality of washers to secure the boundary sheet respectively to the ends of the first columns adjacent to the first corner components.

It is to be understood that both the forgoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

Brief Description of the Drawings

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a portion of the specification, illustrate embodiments of the invention and together with the description serve to explain the principle of the invention. In the drawings:

Fig. 1 is an assembled perspective view illustrating a conventional playpen;

Fig. 2 is an assembled perspective view illustrating the frame of the playpen without a boundary sheet according to the present invention;

Fig. 3 is an exploded perspective view illustrating the first corner near according to the present invention, wherein the first corner is sectioned;

Fig. 4 is an exploded perspective view illustrating the second corner near according to the present invention;

Fig. 5 is an assembled perspective view illustrating the playpen with columns according to the present invention;

Detailed Description of the Invention

Referring to Figs. 2 and 5, the playpen 1 with columns according to the present invention is substantially constructed as a rectangular body and comprises four first corners 11 situated at lower end of the playpen 1, four second corners 12 situated at upper end of the playpen 1, a first rod unit 13 laterally connecting the first corners 11, a second rod unit 14 laterally connecting the second corners 12, four first columns 15



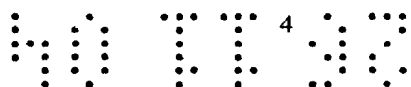
and four second columns 16 vertically connecting the first corners 11 and the second corners 12, and a flexible boundary sheet 17 covering the bottom surface and four side surfaces of the playpen 1 with columns.

As shown in Fig. 3, each thin, flat and shell-like first corner 11 includes an opening 111 provided at the upper end thereof, a first bulge 112 and a second bulge 113 upwardly extending from the bottom thereof, and three holes 114 provided at each sidewall thereof.

As shown in Fig. 4, each second corner 12 is substantially formed as a hollow triangular body and includes a slit 121 extending from the bottom end to two nooks thereof, a first sleeve 122 and a second sleeve 123 downwardly extending from the upper end thereof, and the apertures 124 provided at the sidewalls thereof.

Referring to Figs. 2 and 4 together, each rod of the first rod unit 13 is respectively inserted into the opening 111 of each first corner 11. Then, a rivet 191 respectively passes through the holes 114 of each first corner 11 and the bore 131 of each rod of the first rod unit 13 so as to pivotally connect the first rod unit 13 with four first corners 11 together. Similarly, each rod of the second rod unit 14 is respectively inserted into the slit 121 of each second corner 12. Then, a rivet 193 respectively passes through the apertures 124 of each second corner 12 and the aperture 141 of each rod of the second rod unit 14 so as to pivotally connect the second rod unit 14 with four second corners 12 together.

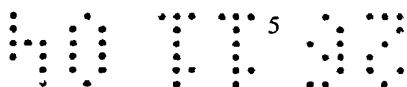
Next, each first column 15 is respectively inserted downwardly into each first corner 11 and bushes around each first bulge 112. Then, a rivet 194 respectively passes through the holes 114 of each first corner 11 and the bore 151 of each first column 15 so as to connect each first column 15 with each first corner 11 together. As far as the upper end of each first column 15, it is inserted into and secured by each first sleeve 122. Similarly, each second column 16 is respectively inserted downwardly into each first corner 11 and bushes around each second bulge 113. Then, a rivet 195 respectively passes through the holes 114 of each first corner 11 and the orifice 161 of each second column 16 so as to connect each second column 16 with



each first corner 11 together. As far as the upper end of each second column 16, it is inserted into and secured by each second sleeve 123. Having assembled to this step, the rectangular frame shown in Fig. 2 of the playpen 1 with columns is completed, wherein the distance between two opposite second columns 16 is larger than that between two opposite first columns 15 and the diameter of the first column 15 is smaller than that of the second column 16. Besides, the adjacent first column 15 and second column 16 have similar convex profiles and are parallel to each other remaining a gap therebetween. However, above description is just a preferred embodiment of the present invention. Alternatively or additionally, the number and profile of the first columns 15 and the second columns 16 may be changed depending on various cases. Furthermore, the rods of the first rod unit 13, the rods of the second rod unit 14, the first columns 15, and the second columns 16 may be solid or hollow.

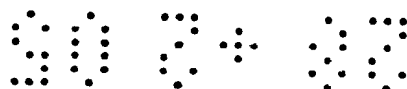
Referring to Figs. 2 and 5 together, the upper end of the boundary sheet 17 is secured entirely (or partially) on the second rod unit 14. The sidewalls of the boundary sheet 17 pass through each gap between each pair of adjacent first column 15 and second column 16 and simultaneously cover each first column 15. Then, a screw 192 passes through a square washer 18 of the playpen 1 with columns and a perforation 152 (shown in Fig. 3) situated at the first column 15 so as to secure the boundary sheet 17 to the lower end of each first column 15 and unbend the whole boundary sheet 17. At the same time, since each second column 16 is not cover by the boundary sheet 17, the color and nature of material, such as metal or plastic, can be appeared or artificial decoration can be added to each second column 16 to provide designer more space for designing different visual feeling from the visual feeling for the boundary sheet 17.

This invention has been disclosed in terms of specific embodiments. It will be apparent that many modifications can be made to the disclosed structures without departing from the invention. Therefore, it is the intent of the appended claims to cover all such variations and modifications as come within the breadth and scope of this invention.



CLAIMS:

1. A playpen with columns comprising:
 - a plurality of first corner components;
 - a plurality of first rods connecting the first corner components;
 - a plurality of second corner components;
 - a plurality of second rods connecting the second corner components;
 - a plurality of first columns each having two opposite ends, one end being connected to a first corner component, another end being connected to a second corner component;
 - a plurality of second columns each adjacent a first column and having two opposite ends, one end being connected to the same first corner component as the first column, another end being connected the same second corner component as the first column;
 - wherein a gap exists between an adjacent first column and a second column to enable a boundary sheet to pass therethrough to enclose the first columns of the playpen.
2. The playpen with columns as claimed in claim 1, wherein each second corner component further comprises a first sleeve and a second sleeve for respectively connecting with the first column and the second column.
3. The playpen with columns as claimed in claim 1, wherein each first corner component further comprises a first bulge and a second bulge for respectively connecting with the first column and the second column.
4. The playpen with columns as claimed in claim 3, wherein the columns respectively bush around the bulges.



5. The playpen with columns as claimed in claim 1 or 4, wherein the playpen further comprises a plurality of rivets to secure the columns respectively to the first corner components.
6. The playpen with columns as claimed in claim 1, wherein the playpen further comprises a plurality of washers to secure the boundary sheet respectively to the ends of the first columns adjacent to the first corner components.